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Pesticide Fact Sheet Number 97.1: Alachlor

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16. Abstract (Limit: 200 words)

This document contains up-to-date chemical information, including a summary of the Agency's regulatory position and rationale, on a specific pesticide or group of pesticides. A Fact Sheet is issued after one of the the following actions has occurred.

1. Issuance or reissuance of a registration standard,
2. Issuance of each special review document,
3. Registration of a significantly changed use pattern,
4. Registration of a new chemical, or
5. An immediate need for information to resolve controversial issues relating to a specific chemical or use pattern.

17. Document Analysis a. Descriptors

Pesticides, regulations, Chemical Information Fact Sheet, Use Patterns, science findings.

b. Identifiers/Open-Ended Terms

c. COSATI Field/Group

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EPA

Pesticide Fact Sheet

Name of Chemical: ALACHLOR
Reason for Issuance: SPECIAL REVIEW
Date issued: DEC 14 1987
Fact Sheet Number: 97.1

1. Description of the Chemical

Chemical name: 2-chloro-2'-6'-diethyl-N-(methoxymethyl)-acetanilide

Common name: Alachlor

Trade names: Lasso®, Pillarzo®, Alanex®

EPA Shaughnessy number: 090501

Chemical abstracts service (CAS) number: 15972-60-8

Year of initial registration: 1969

Pesticide type: Herbicide

Chemical Family: Acetanilide

2. Use Patterns and Formulations

Application sites: preemergent use on field corn (including sweet corn, popcorn), soybeans, peanuts, dry beans, lima beans, green peas, cotton, grain sorghum, sunflowers, ornamental plants.

Types of formulations: emulsifiable concentrate, granular, microencapsulate

Types and methods of application: ground or aerial methods

Application rates: rate and frequency vary according to site application; typically 1 to 4 pounds of active ingredient per acre.

3. Science Findings:

Physical and Chemical Properties

Color	--	White
Melting Point	--	40 to 41°C
Specific Gravity	--	1.133 (25/15.6°C)
Solubility	--	Soluble in ether, acetone, benzene, alcohol (unspecified) and ethyl acetate; slightly soluble in hexane; solubility in water - 240 ppm

Physical and Chemical Properties:

Octanol/Water Partition Coefficient	--	434
Stability	--	Stable (first detectable heat evolution at 105°C)
Appearance at room temperature	--	White, crystalline solid at 23°C

Tolerance Assessment: Tolerances were established in 40 CFR 180.249 for residues of alachlor and its metabolites.

Toxicology Summary:

Acute toxicity - Technical alachlor is not an acutely toxic product by any route of exposure. The acute oral LD_{50} in rats is .93 g/kg (Category III), the acute dermal LD_{50} in rabbits is 13.3 g/kg (Category III), and alachlor does not cause significant eye or skin irritation in rabbits (Category IV).

Chronic Toxicity - Alachlor is oncogenic in both mice and rats. In mice, alachlor causes a statistically significant increase in lung bronchioalveolar tumors in females at 260 mg/kg/day (Highest Dose Tested). In rats, alachlor causes statistically significant increases at 42 mg/kg/day and above in nasal turbinate and stomach tumors in both sexes and thyroid follicular tumors in males. The following No Observed Effect Levels (NOELS) have been established for non-oncogenic effects: 1 mg/kg/day for liver and kidney effects; 2.5 mg/kg/day for uveal degeneration syndrome (UDS) of the eyes; 10 mg/kg/day for reproductive effects to kidneys of offspring. No birth defects were seen in highest dose tested for rats (400 mg/kg /day), but an additional teratogenicity study in rabbits is pending completion in 1988.

4. Summary of Agency's Regulatory Position

The Agency position is that current registrations for the use of alachlor on agricultural and nonfood crops will be allowed to continue provided the following conditions and label modifications are met to reduce applicator exposure:

a. Reclassification as restricted use pesticide.

The application of alachlor is restricted to use by certified applicators or persons under their direct supervision.

b. Continue use of tumor warning on label.

The following tumor warning statement imposed in the alachlor Registration Standard must remain on the label:

> "The use of this product may be hazardous to your health. This product contains alachlor which has been determined to cause tumors in laboratory animals."

c. Require the use of mechanical transfer devices by all mixer/loaders and/or applicators who treat 300 acres or more annually with alachlor.

d. Reinstate aerial application on the alachlor label with the following additional label restriction:

> "Human flaggers prohibited. Aerial application may be performed using mechanical flaggers only."

The Agency has determined that the upper bound U.S. dietary risk from alachlor residues on food crops is in the range of 10^{-6} (approximately one increased tumor case per million persons exposed) based on the actual percent of crops treated with alachlor. The Agency believes this risk is reasonable given the benefits of continued use.

The Agency has determined that the risks associated with alachlor exposure through ground water cannot be adequately assessed at this time. The true extent of alachlor occurrence in ground water is not known and cannot be properly estimated for most areas of the country. Further monitoring will be necessary considering the large volume, multiregional use of alachlor, and the lack of statistically representative data from the available studies. The Agency's final evaluation of the

potential for alachlor contamination of ground water is being deferred, pending receipt of required monitoring data being generated by the registrant under an EPA-approved protocol. This study is scheduled for completion in late 1989, and the results will be evaluated by EPA in early 1990.

Existing data on alachlor residues in surface water indicate that the risk from drinking water sources supplied by surface water will generally not exceed a range of 10^{-6}. The Agency believes this level of risk is reasonable given the benefits of continued use of alachlor products, and is not proposing regulatory action under FIFRA on alachlor residues in surface water. The Agency plans to promulgate regulations establishing a Maximum Contaminant Level (MCL) for alachlor under the Safe Drinking Water Act in the near future. These regulations would require the treatment of drinking water which contains alachlor residues in excess of the MCL, thereby maintaining the level of risk from exposure at reasonable levels.

5. Contact person:

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